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非等温硼酸酯化反应动力学研究

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摘要 通过对酯化反应特点的分析,建立了只需跟踪反应出水量、反应时间和相应的体系温度,
便可对非等温条件下酯化反应动力学进行定量分析的实验方法,并导出了用于计算动力学参数的理论公式.
在此基础上研究了二甘醇独丁醚硼酸酯的合成动力学,经计算得知该反应为二级反应,表现活化能为98.33kj/mol,
频率因子为1.048×10^7L·mol^-1·S^-1.文中通过一组不同升温速率条件下的实验数据,
对反应动力学参数及所导计算公式进行了验证.

关键词 反应动力学 酯化 硼酸 二甘醇独丁醚

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A study for kinetics of the esterification of boric acid under non- isothermal condition

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Abstract A dynamic experimental method and a theor. formula were made up by analyzing the character of the esterification of boric acid with BuOCH2CH2OH. It can be used to quant. analyze the kinetics by measuring the amount of water produced in esterification, reaction time, and system temperature in the process of esterification. The esterification kinetics of boric acid has been studied under the non-isothermal condition. By calculation, it was determine that the overall order is second, the apparent activation energy is 98.33 kJ/mol and the frequency factor is 1.048 ?107 L.mol-1.s-1.

Key words REACTION KINETICS ESTERIFICATION BORIC ACID

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